

9. CUMULATIVE EFFECTS AND OTHER ENVIRONMENTAL CONSIDERATIONS

9.1 CUMULATIVE EFFECTS

9.1.1 Introduction

According to Council on Environmental Quality regulations, cumulative effects analysis in an environmental impact statement (EIS) should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 Code of Federal Regulations 1508.7).

Cumulative effects may occur when there is a relationship between a proposed action or alternative and other actions expected to occur in a similar location or during a similar time period. This relationship may or may not be obvious. The effects may then be incremental and result in cumulative impacts. Actions overlapping with or in close proximity to the Proposed Action or alternatives can reasonably be expected to have more potential for cumulative effects on “shared resources” than actions that may be geographically separated. Similarly, actions that coincide in the same time frame will tend to offer a higher potential for cumulative effects.

In this EIS, the Air Force has made an effort to identify actions on or near the action area that are under consideration and in the planning stage at this time. These actions are included in the cumulative analysis to the extent that details regarding such actions exist and the actions have a potential to interact with the Proposed Action or alternatives outlined in this EIS. Although the level of detail available for those future actions varies, this approach provides the decision maker with the most current information to evaluate the consequences of the alternatives. The EIS addresses cumulative impacts in order to assess the incremental contribution of the alternatives to impacts on affected resources from all factors.

The analysis first discusses past actions, events, and circumstances that are relevant to the environments associated with the Eglin base realignment and closure (BRAC) alternatives. Following is a discussion of other actions that, when combined with the Eglin BRAC actions, may result in incremental impacts.

9.1.2 Relevant Past and Present Actions

For over 60 years, Eglin Air Force Base (AFB) has armed the U.S. military through the development and testing of conventional weapons. Over 50 specific test areas and sites are located on the Eglin land and water ranges in the Gulf of Mexico for specialized

weapons testing (U.S. Air Force, 1996a), the majority of which is air-to-ground testing. The approximately 130,000 square miles of airspace overlying the land and water ranges permits relatively unconstrained operations. Eglin contains the largest test range in the continental United States and the only supersonic range (Test Area [TA] B-70) east of the Mississippi River. The preservation of unique test areas on Eglin AFB is critical to the new generation of large footprint and long-range standoff weapons. The combination of extensive land and water ranges provides the necessary areas to contain large weapons footprints and long distances required for testing the new generation of weapons.

Areas that exist beyond and between the test areas are multi-use interstitial areas used primarily for safety buffers. These areas are also used for air-to-ground training when scheduling permits and for recreational purposes. Training at Eglin includes primarily the Air Force Special Operations Command, other Air Force units, some ground training by the Alabama Army National Guard and the Army Rangers, and the Navy air-to-ground training and Explosive Ordnance Disposal (EOD) school. Public recreation, including hunting, hiking, boating, and fishing, occurs on approximately 272,800 acres and is on a non-interference basis with military uses.

The relevant past and present actions associated with the impacts of the Proposed Action include continued use of the test and interstitial areas for military test and training, existing base development and operations, plus nearby development and infrastructure improvements such as roads, pipelines, and power transmission lines. Additionally, the 2004 and 2005 hurricane seasons resulted in Florida's exposure to numerous hurricanes causing significant damage to the Florida panhandle in 2004 and 2005, affecting employment and housing markets throughout northwest Florida. Past and present actions in and around the action areas associated with these activities may have cumulative effects on the local environment.

9.1.3 Reasonably Foreseeable Future Actions

For the purposes of facilitating cumulative impact analysis, reasonably foreseeable actions have been categorized as those projects outside of the control of Eglin AFB; generally these are regional development projects. Based on their scope, projects have been identified that may contribute incrementally to impacts associated with this Proposed Action; projects that the Air Force considered minor in scope (e.g., building of a courthouse annex, improvements to roadways for pedestrians, etc.) are not identified here and were not included in the impact analysis.

Developments of Regional Impact (DRIs). Review of the latest West Florida Regional Planning Council (WFRPC) Annual Report (2005) shows that there are no DRIs that entered the review process during 2005. As of the 2004 review process, the only DRIs associated with Okaloosa County were related to proposed changes at Bluewater Bay (northeast of Niceville) and Emerald Bay (at the south Okaloosa-Walton County line).

1 **Destin/Fort Walton Beach Airport Construction Projects.** The Destin/Fort Walton
2 Beach Airport is planning many new construction projects over the next few years.
3 Plans include constructing an air traffic control tower, overlaying the runway with
4 asphaltic concrete, installing an approach lighting system for Runway 32/14, and
5 installing a GPS approach and acquiring a strip mall for a south approach.

6
7 **Bob Sikes Airport Projects.** The Bob Sikes Airport in Crestview is planning the
8 following projects: widening and overlaying all taxiways and rehabilitating Runway
9 17/35; designing and installing an approach lighting system with new Precision
10 Approach Path Indicator (PAPI); and resurfacing and expanding the apron.

11
12 **DeFuniak Springs Airport Projects.** The DeFuniak Springs Airport is planning new
13 projects over the next few years which include overlaying the taxiway and constructing
14 an apron, constructing an apron and expanding an apron, expanding the taxiway and
15 constructing T-Hangers, installing guidance signs, and constructing additional terminal
16 parking and terminal facility expansion.

17
18 **Panama City-Bay County International Airport Relocation.** The Panama City-Bay
19 County International Airport is in the process of relocating to a 4,000-acre complex in
20 the West Bay area. This project is expected to be completed in calendar year 2009.

21
22 **Mid-Bay Bridge Widening and Bypass.** The Mid-Bay Bridge Authority plans to widen
23 the Mid-Bay Bridge and the northern corridor up to State Route (SR) 20 to four lanes.
24 They are also planning a four-lane "bypass" from the Mid-Bay Bridge to Hwy (or
25 SR) 85, going around the city of Niceville. The plans together would provide four-lane
26 access to Destin from Interstate 10 (I-10). However, all of the projects are in the very
27 early planning stage. The construction would be paid for by the collection of tolls
28 (Okaloosa-Walton Transportation Planning Organization: Project Priorities FY 2007-
29 2011).

30 **Florida Department of Transportation (FDOT) SR 85 and SR 123 Interchanges.** The
31 FDOT is considering a proposed action to construct two interchanges; one at the
32 southern intersection of SR 85 and SR 123, and another adjacent to the Okaloosa
33 Regional Airport. The proposed interchange is a two-lane flyover (overpass) for
34 northbound traffic on SR 85 to connect with SR 123, eliminating the traffic signal that
35 currently handles left-turning traffic onto northbound SR 123. The FDOT would
36 construct a second overpass at the current intersection between SR 85 and the airport
37 exit at the east end of the airport to a flyover for both airport entry from and exit to
38 SR 123. SR 85 entry to and exit from the airport would occur directly from SR 85.
39 Additionally, the FDOT would construct a frontage road that parallels SR 85 to connect
40 SR 123 to the airport entrance and exit flyover. Southbound traffic on SR 123 turning
41 left at SR 85 would relocate onto the frontage road; SR 85 southbound traffic turning
42 right onto SR 123 would use the same east airport entrance intersection and frontage

road. The proposed action would require 35.4 acres for right-of-way expansion and a lease involving the clearing of 4.6 wooded acres to widen the existing roads, construct the interchange, construct the frontage road, place five stormwater dry retention beds, and relocate existing utilities. The FDOT would conduct the proposed action on Eglin-owned land and would require an easement across federal property to provide additional rights-of-way to accommodate the proposed construction.

Area Transportation Improvements. Currently, there are plans to upgrade part of Hwy 85 from four to six lanes. This project would affect the stretch of highway from General Bond Boulevard to Hwy 123 and its interchange at the Airport.

9.1.4 Cumulative Effects Analysis

Cumulative effects are assessed for each of the resources analyzed in previous sections. For this analysis, the past, present, and future actions would be the sum of all the activities associated with the Proposed Action (Sections 2.3 through 2.6), the No Action Alternative (Section 2.7), and the other actions described in Sections 9.1 through 9.3.

Airspace

As indicated in Chapter 7 (Section 7.2, Airspace), the Joint Strike Fighter (JSF) flight operations would impact air traffic controller workload and contribute to increased congestion (air and ground delays) for military and civilian aircraft across the region. The JSF flight operations would contribute to an already-congested airspace created by the continuing growth of other civilian and military aviation customers in the region.

Projects occurring at the civilian airports located in Destin, Pensacola, Panama City, DeFuniak Springs, and Crestview (Bob Sikes Airport) are anticipated to result in increased use of these airfields by civilian aircraft. Therefore, airspace use surrounding the Eglin Range complex, which includes Eglin Main Base and the two outlying fields being used for training activities, is anticipated to increase. The complex regional airspace configuration and use calls for modifications involving all the civilian and military users of the airspace.

Noise

Under any of the JSF flight training action alternatives, time-averaged aircraft noise levels at several known noise-sensitive locations would increase to a level that may be considered by the public to be adverse (see Chapter 7, Section 7.3, Noise). Cumulative impacts would occur wherever noise impacts from proposed BRAC actions would overlap with noise impacts resulting from other reasonably foreseeable actions planned to occur at Eglin AFB/Range.

1 The majority of the relevant past and present actions considered as part of the
2 cumulative impacts analysis process involve construction of a new facility or
3 demolition of an existing facility. Construction noise is temporary, lasting only for the
4 duration of the construction project, and is typically limited to normal working hours
5 (7:00 AM to 5:00 PM). In many locations, construction noise would be drowned out by
6 aircraft noise. Noise impacts associated with these projects are expected to be limited to
7 within the boundaries of Eglin AFB and Range and would be insignificant either
8 separately or cumulatively.

10 New facilities proposed to be constructed on Eglin AFB and Range may be exposed to
11 high noise levels due to aircraft overflight and munitions use. Where practicable,
12 on-base structures should incorporate noise attenuation measures in accordance with
13 the Air Force noise guidelines published at DoDI 4165.57, *Air Installation Compatible Use*
14 *Zones*.

16 In addition to several construction projects, the Alabama Army National Guard
17 (ALARNG) proposes to expand and increase operations at the Cobb Training Site on
18 Eglin Range (ALARNG, 2007h). ALARNG training would occur in the western portion
19 of Eglin Range and would be geographically distant from 7th Special Forces Group
20 (Airborne) (7SFG(A)) munitions training activities, which would occur in the eastern or
21 central portions of the range. Therefore, noise from these two types of training would
22 not be expected to be additive to one another. JSF high-explosives munitions training
23 would occur in the western portion of the range, near ALARNG training locations.
24 However, targets used for both JSF and ALARNG training would be located near the
25 geographic center of the range and neither are expected to contribute to noise levels of
26 greater than 62 decibels (d) C-weighted day-night sound level (CDNL) extending
27 beyond range boundaries.

28 ***Land Use***

29 Land use changes associated with the JSF Initial Joint Training Site (IJTS) and 7SFG(A)
30 cantonments and training would incrementally contribute to the changing character of
31 the area. Key elements of the Proposed Action, including facility construction, flight
32 activities, and ground training are generally consistent with the existing land use plans
33 for Eglin Main Base and the Eglin Range and would not be expected to substantially
34 affect land use patterns in these areas. However, the 7SFG(A) cantonments that could be
35 located near Duke Field and the 7SFG(A) ranges that would be required for training
36 would have an adverse impact on existing recreational use. Up to approximately
37 62,000 acres within the Eglin Range currently open for recreational activities (including
38 hunting) could become closed to the public because of safety and security concerns.

1 The Proposed Action should not have any cumulative land use impacts on the majority
2 of the reasonably foreseeable cantonment area projects on Eglin AFB. It is unknown at
3 this time if the proposed 96th Security Forces Squadron complex and the new Explosive
4 Ordnance Disposal complex located along Nomad Way would conflict with the
5 proposed JSF IJTS cantonment if it is located in the 33 FW area. It is also possible that a
6 potential expansion of the University of Florida REEF could conflict with the proposed
7 7SFG(A) cantonment if the expansion or cantonment were to be located within the
8 North Poquito area. The increase in noise exposure and its effect on land use
9 compatibility could have a potentially adverse cumulative impact on the Military
10 Family Housing (MFH) Privatization Program. Future studies associated with the MFH
11 Program would need to consider the potential increase in noise exposures that could
12 result from the Proposed Action. No cumulative land use impacts are anticipated for
13 either Duke Field or Choctaw Field if they are used for JSF training activities. The JSF
14 IJTS and 7SFG(A) training activities that would occur on the Eglin Range fit within the
15 existing uses of this area, and adverse cumulative impacts are not expected.

16
17 The 7SFG(A) cantonment and training alternatives would have an additional
18 incremental impact on recreational use when combined with the impacts from the
19 ALARNG Cobb Training Site and the LADAR Test Laboratory and Outdoor Test
20 Range. Use of TA B-75 or B-5 for new small arms range complex would create new
21 surface danger zones (SDZs) that would extend beyond the boundaries of the existing
22 training areas. During range firing, the affected areas would have to be closed. This
23 would require temporary closure of portions of Management Units 12 and 14 (TA B-75)
24 or 2 and 6N (B-5) for up to 41 weekends and 40 weekdays per year. The closures
25 associated with the 7SFG(A) range training alternatives primarily impact recreational
26 use on the management units in the central and eastern portion of the Eglin Range.
27 Additional area to the west would be closed from the ALARNG training. The outdoor
28 LADAR test range is proposed to be located west of TA C-53 and would impact
29 recreational use on a portion of Management Unit 13. However, the affected area would
30 be within the area that would be conditionally closed under the 7SFG(A) training
31 alternatives because of the addition of the Group 2 firing ranges and maneuver area.
32 The additional future projects on the Eglin Reservation would further exacerbate the
33 restrictions on the availability of recreational opportunities on Eglin and the impact on
34 the availability of recreational activities would be adverse.

35
36 Potential increases in noise exposures from the proposed JSF airfield and aircraft
37 operations would have adverse impacts on existing off-base land uses especially on
38 residences located within affected areas. Depending on which alternative is selected,
39 between 9,000 to 21,000 acres of off-base area would be exposed to noise levels of 65 dB
40 day-night sound level (DNL) or greater and 2,000 to 6,000 off-base acres would be

1 exposed to noise levels of 75 dB DNL or greater. The affected off-base property includes
2 areas of land and water.

3
4 Noise impacts on the surrounding communities would be greatest northeast of Eglin
5 Main Base in Valparaiso and Niceville. Other impacted areas include unincorporated
6 areas of Okaloosa County part of the city of Shalimar, the eastern end of Okaloosa
7 Island, a portion of Destin, property located just east of Destin near the Mid Bay Bridge,
8 and the area southeast of Crestview over the Shoal River. Depending on the alternative,
9 between 60 to 350 acres of residential land located primarily in the Valparaiso and
10 Niceville areas would be exposed to noise levels that exceed 75 dB DNL. Although local
11 conditions may require residential use, it is discouraged in areas with noise levels of
12 65 to 70 dB DNL and strongly discouraged in areas with noise levels of 70 to 75 dB
13 DNL. Nearly all studies analyzing aircraft noise and residential compatibility
14 recommend no residential uses in noise zones above 75 dB DNL. The additional noise
15 exposures that would result from the proposed action should be considered in any
16 future land use planning in the potentially affected areas. The Okaloosa County Year
17 2020 Comprehensive Plan indicates that the land use in Valparaiso and Shalimar would
18 remain static.

19 ***Socioeconomics and Environmental Justice***

20 The drawdown of the 33 FW and the President's Budget Decision analyzed in the No
21 Action Alternative would occur prior to the BRAC actions, beginning in FY 2007 and is
22 estimated to be complete by FY 2011. During this time, the base population on Eglin
23 AFB would actually decrease from nearly 28,300 personnel in FY 2008, including active
24 duty military, civilians, contractors, and dependents to 25,211 personnel in FY 2010
25 (Table 9-1). The loss of personnel from the drawdown of the 33 FW and the President's
26 Budget Decision would flow through the regional economy and the population loss and
27 the decrease in demand for goods and services would result in a loss of jobs, tax
28 revenues, and the demand for services. These losses would be partly offset, however,
29 by the transition of the 7SFG(A) personnel into the region beginning in FY 2009. The
30 incoming personnel would generate additional activity in the region, increasing the
31 demand for goods and services, subsequently creating jobs and generating tax revenue.
32 As the 7SFG(A) continues the transition, scheduled to be completed in FY 2011, base
33 population would increase to over 32,600 personnel. The JSF personnel would begin to
34 beddown in the region in FY 2010 with the arrival of the first aircraft and then continue
35 until FY 2016, continuing to stimulate economic activity in the region of influence (ROI).
36 By the end-state of the BRAC actions, as well as the 33 FW drawdown and the
37 President's 2007 Budget, Eglin AFB population would be over 36,000.

Table 9-1. Annual Changes from Proposed Action

| | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 BRAC End-State |
|---|------------|------------|------------|------------|------------|------------|------------|------------|---------------------------|
| Eglin AFB Population with BRAC | | | | | | | | | |
| Officers | 1,563 | 1,538 | 1,499 | 2,039 | 2,066 | 2,095 | 2,115 | 2,138 | 2,152 |
| Enlisted | 6,368 | 5,585 | 4,997 | 7,992 | 8,303 | 8,586 | 8,846 | 9,113 | 9,276 |
| Civilian/CME | 9,147 | 9,203 | 9,506 | 9,582 | 9,480 | 9,499 | 9,500 | 9,529 | 9,529 |
| International | - | - | 3 | 10 | 83 | 86 | 86 | 132 | 132 |
| Dependents | 11,214 | 10,083 | 9,206 | 13,042 | 13,515 | 13,952 | 14,344 | 14,750 | 15,024 |
| Total Eglin AFB Population | 28,292 | 26,409 | 25,211 | 32,665 | 33,447 | 34,218 | 34,891 | 35,662 | 36,113 |
| BRAC Construction Spending (\$M) | | | | | | | | | |
| | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | Construction End-State |
| JSF IJTS | 65.1 | 75.0 | 85.6 | 20.5 | 38.3 | - | - | - | 284.5 |
| 7SFG(A) | 10.7 | 220.0 | 38.5 | 115.4 | - | - | - | - | 384.6 |
| Base Operating Support | 2.4 | 23.9 | 58.4 | 6.6 | 1.7 | - | - | - | 93.0 |
| Total BRAC Construction Spending | 78.2 | 318.9 | 182.5 | 142.5 | 40.0 | - | - | - | 762.1 |

AFB = Air Force Base; BRAC = Base Realignment and Closure; FY = Fiscal Year; IJTS = Initial Joint Training Site; JSF = Joint Strike Fighter; \$M = Million Dollars

The BRAC action would also have an increase in construction spending of approximately \$762 million in order to establish the cantonment and range areas for the 7SFG(A) and the JSF. The largest share of spending would occur in FY 2009.

The combined effects of the BRAC actions, military construction (MILCON) spending, and the 33 FW and other personnel decreases would have a long-term effect on the regional economy. Table 9-2 presents the estimated total jobs attributable to BRAC related activities between FY 2008 and FY 2016. The direct base jobs support an induced number of jobs. MILCON directly supports jobs and expenditures create indirect and induced jobs within the ROI. The table demonstrates that total jobs will vary from FY 2008 through FY 2012 and then stabilize between FY 2012 and 2016.

In FY 2008, the number of jobs supported by Eglin AFB and related BRAC spending is estimated to be 28,500 (Table 9-2). MILCON spending would begin in FY 2008 and stimulate the economy, bringing the number of jobs supported to over 32,300 in FY 2009. However, the drawdown of the 33 FW and the decrease in personnel from the President's 2007 Budget would offset some of the job gains. The number of jobs supported by Eglin AFB would decrease slightly between FY 2009 and 2010. With the beddown of the JSF and the realignment of the 7SFG(A), the number of jobs would increase and stabilize with approximately 32,000 jobs between FY 2011 and FY 2016 (Table 9-2).

Table 9-2. Projected Eglin AFB Supported Jobs in the ROI

| | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 | FY 2013 | FY 2014 | FY 2015 | FY 2016 |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Officers | 1,563 | 1,538 | 1,499 | 2,039 | 2,066 | 2,095 | 2,115 | 2,138 | 2,152 |
| Enlisted | 6,368 | 5,585 | 4,997 | 7,992 | 8,303 | 8,586 | 8,846 | 9,113 | 9,276 |
| Civilian/Other | 9,147 | 9,203 | 9,509 | 9,592 | 9,563 | 9,585 | 9,586 | 9,661 | 9,661 |
| Total | 17,078 | 16,326 | 16,005 | 19,623 | 19,932 | 20,266 | 20,547 | 20,912 | 21,089 |
| Induced | 9,859 | 9,425 | 9,240 | 11,328 | 11,507 | 11,700 | 11,862 | 12,072 | 12,175 |
| Milcon/Related ¹ | 1,626 | 6,632 | 3,796 | 2,964 | 832 | - | - | - | - |
| Total Jobs | 28,563 | 32,383 | 29,041 | 33,915 | 32,271 | 31,966 | 32,409 | 32,984 | 33,264 |

1) Includes Direct, Indirect, and Induced

The specific effects of the personnel changes related to the BRAC actions and the No Action Alternative were estimated using the Impact Analysis for Planning (IMPLAN) economic impact model. Table 9-3 illustrates the total effects of the BRAC actions in combination with the No Action Alternative at the end of the transition.

Table 9-3. Aggregated Socioeconomic Effects of BRAC at End-State

| | 7SFG(A) Effects | JSF IJTS Effects | No Action Alternative Effects | Aggregated Effects | |
|--|--------------------|---------------------|-------------------------------------|--------------------|----------------------------|
| | Totals | Totals | Totals | Totals | Total Percent Change |
| Population | | | | | |
| Existing Conditions, 2005 ^(a) | 388,466 | 388,466 | 388,466 | 388,466 | |
| Direct | 6,067 | 4,885 | -4,561 | 6,391 | 1.6% |
| Induced | 2,516 | 2,587 | -2,443 | 2,660 | 0.7% |
| Total | 8,583 | 7,472 | -7,004 | 9,051 | 2.3% |
| Employment | | | | | |
| Existing Conditions, 2004 ^(b) | 189,469 | 189,469 | 189,469 | 189,469 | |
| Direct | 2,200 | 2,326 | -2,172 | 2,354 | 1.2% |
| Induced | 1,287 | 1,322 | -1,251 | 1,359 | 0.7% |
| Total | 3,527 | 3,648 | -3,423 | 3,753 | 2.0% |
| Housing | | | | | |
| Existing Conditions, 2000 ^(c) | 156,795 | 156,795 | 156,795 | 156,795 | |
| Direct | 2,200 | 2,326 | -2,172 | 2,354 | 1.5% |
| Induced | 1,287 | 1,322 | -1,251 | 1,359 | 0.9% |
| Total | 3,527 | 3,648 | -3,423 | 3,753 | 2.4% |
| Students | | | | | |
| Existing Conditions, 2005 ^(d) | 61,955 | 61,955 | 61,955 | 61,955 | |
| Direct | 1,521 | 879 | -821 | 1,580 | 2.5% |
| Induced | 435 | 710 | -422 | 723 | 1.2% |
| Total | 1,957 | 1,589 | -1,243 | 2,302 | 3.7% |
| School Revenue | | | | | |
| Existing Conditions, 2005 ^(e) | \$413,847,831 | \$413,847,831 | \$413,847,831 | \$413,847,831 | |
| Direct | \$10,144,790 | \$5,862,554 | -\$8,689,533 | \$3,178,111 | 1.8% |

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Table 9-3. Aggregated Socioeconomic Effects of BRAC at End-State, Cont'd

| | 7SFG(A) Effects | JSF IJTS Effects | No Action Alternative Effects | Aggregated Effects | |
|--|--------------------|---------------------|-------------------------------------|--------------------|----------------------------|
| | Totals | Totals | Totals | Totals | Total Percent Change |
| Induced | \$4,602,302 | \$4,732,454 | -\$4,468,349 | \$4,866,408 | 1.2% |
| Total | \$14,747,092 | \$10,595,008 | -\$13,157,882 | \$12,184,219 | 2.9% |
| Law Enforcement | | | | | |
| Existing Conditions, 2005 ^(f) | 670 | 670 | 670 | 670 | |
| Total | 37 | 31 | N/A | 68 | 10.1% |
| Fire Protection | | | | | |
| Existing Conditions, 2006 ^(g) | 657 | 657 | 657 | 657 | |
| Total | 13 | 11 | N/A | 24 | 3.7% |
| Medical | | | | | |
| Existing Conditions, 2006 ^(h) | 11,446 | 11,446 | 11,446 | 11,446 | |
| Total | 249 | 217 | N/A | 466 | 4.1% |

a. Office of Economic and Demographic Research, The Florida Legislature, 2005

b. U.S. Bureau of Economic Analysis, 2006

c. U.S. Census Bureau, 2000a, 2000b, 2000c

d. Florida Department of Education, 2005a

e. Florida Department of Education, 2005b

f. Florida Department of Law Enforcement, 2005

g. Department of Homeland Security, U.S. Fire Administration, 2006

h. Orcutt, 2006

A net total of approximately 9,051 persons would enter the region as a result of BRAC, including civilians, contractors, and dependents, increasing the total population 2.3 percent between 2008 and 2016. The increase in population would subsequently contribute to the creation of jobs, additional income and tax revenues, as well as additional demand for public services.

Employment would also increase as a result of the aggregated BRAC actions, in spite of the loss of jobs caused by the drawdown of the 33 FW and related personnel. The 7SFG(A) would create a total of 3,527 jobs, including the employment of the incoming personnel and secondary jobs that would be created from the additional spending of the incoming personnel. The JSF personnel would increase employment by 3,648 jobs, while the actions associated with the No Action Alternative would decrease the number of jobs in the region by 3,423. Total employment in the region would be expected to increase by 3,753 jobs as a result of the combined BRAC and No Action Alternatives, an increase of 2.0 percent.

As with employment, assuming one BRAC-related job per household, the number of housing units demanded would also increase in relation to the increase in employment. An estimated total of 3,753 housing units would be demanded by the incoming population. If these households were to rely completely on new construction, the number of housing units would increase 2.0 percent as a result of the incoming personnel.

Recently, the strength of the housing market has been a concern for the United States as well as the state of Florida. Demand for housing increased corresponding to the decrease in interest rates and the availability of new mortgages, including adjustable rate mortgages, that allowed more people to own homes. Housing prices also increased across the country. In 2004, the median price of a housing unit in Okaloosa County was \$169,833, as compared to the median price in the United States of \$170,800. In 2007, the median price increased to \$215,900 in Okaloosa County surpassing the median price in the United States of \$212,300 (Economic Development Council [EDC] of Okaloosa County, FL, "Okaloosa County Real Estate"). Santa Rosa County experienced a similar increase in the median price between 2004 and 2005, when the median sales price increased over 23 percent (Florida Legislature Office of Economic and Demographic Research, 2007, "Santa Rosa County Profile"). Information on the median sales price for Walton County was not available.

The rate of price increases began to slow between 2005 and 2007, when higher interest rates, increased property taxes, and increased homeowner's insurance contributed to the weakening of the housing market. While housing prices in Florida continue to increase, the increase is more gradual than that experienced at the height of the housing market. As the housing market continues to adjust to the excess inventory, some areas in the United States are expected to experience decreasing housing prices and declining equity. In the ROI, however, the increased demand from the personnel entering the region as a result of BRAC may stimulate the housing market to the extent that housing prices would stabilize.

In addition to the increase in population, the BRAC actions would also increase the number of students in the three school districts in the ROI. By using demographics provided by the U.S. Army and Air Force, an estimated 1,957 students would enter the region's school districts from the 7SFG(A) actions, and 1,589 students would enter as a result of the JSF. However, 1,243 students would be estimated to leave the region's school districts from the change in personnel related to the No Action alternative. In total, an estimated 2,302 students would be added to the region, increasing the student population by 3.7 percent (Table 9-3).

In relation to the number of students in the region, the amount of revenues collected by the three school districts would also increase. In aggregate, school revenues would increase by over \$12 million, an increase of 2.9 percent.

For public services including law enforcement, fire protection, and medical services, it is reasonable to assume that a decrease in population would not necessarily result in a decrease in the provision of those services or the number of people to fill those positions. Therefore, it is assumed that, regardless of the decrease in the regional population caused by the 33 FW drawdown, the number of law enforcement officers, firefighters, and medical professionals would remain the same. The BRAC actions and subsequent increase in population would then drive an increase in the provision of

public services in order to maintain the current levels of demand and supply. Therefore, an estimated additional 68 law enforcement officers would be required as a result of the 7SFG(A) actions and the JSF actions. Twenty-four firefighters would be needed and 466 medical professionals would be needed throughout the region to maintain the current level of public services in relation to the increased population from the BRAC actions.

The BRAC actions would also require additional construction spending to build or renovate suitable facilities for the 7SFG(A) and the JSF. The additional construction spending would filter through the regional economy and contribute to job growth, income growth, and total economic output. In 2004, the construction industry provided approximately 15,400 jobs in in the ROI. A total of over \$762 million would be spent by the U.S. Air Force for construction for the BRAC actions, including approximately \$93 million that is related to overall base operating support and not directly to either BRAC action. The additional spending by the Air Force would then multiply through the economy until a total of over \$1.2 billion in total spending has cycled through the economy. The construction spending would also contribute to job growth by creating a total of 15,850 jobs in the region, of which 10,338 would be directly related to the construction industry and corresponding industries, including industries such as food services, retail, and other services (Table 9-4). However, these effects are not permanent, as the additional jobs and incomes would be supported only by the increased construction spending which would stop when the construction is completed.

Table 9-4. Estimated Impact of Military Construction

| | Direct | Indirect | Induced | Total |
|-------------------------|---------------|---------------|---------------|-----------------|
| Total Spending (Output) | \$762,099,968 | \$194,143,002 | \$259,956,694 | \$1,216,199,677 |
| Incomes Generated | \$346,824,576 | \$82,779,526 | \$83,123,107 | \$512,727,198 |
| Jobs Supported | 10,338 | 2,290 | 3,223 | 15,850 |

Source: Haas Center for Business Research and Economic Development, 2006

Several other large construction and infrastructure improvement projects are expected, including major projects at three of the ROI's airports: Destin/Fort Walton Beach Airport, Bob Sikes Airport, and DeFuniak Springs Airport. These construction projects, as well as the infrastructure improvement projects planned for the Mid-Bay Bridge and Hwy 85 and Hwy 123 interchanges, would contribute to the regional economy by creating additional employment, especially in the construction and construction-related industries. The various airport improvements were scheduled to take place between 2007 and 2011, overlapping the construction scheduled for the BRAC actions. The schedule for the road improvements is not known at this time. The magnitude of these construction projects is such that it is possible that construction workers may migrate to the region or possibly commute daily or weekly from outside of the region. However, these construction projects are temporary and the change in population, if any, from the construction workers is not expected to contribute to a permanent increase in the region's population.

Under the JSF flight training alternatives, disproportionate concentrations of minority and/or low-income populations underlie noise levels of 65 dB DNL or greater in the special use airspace that would be utilized by the F-35. These populations would be subject to adverse noise impacts from these noise levels. Two military training routes (MTRs) are proposed for use in JSF flight training, VR-1082 and VR-1085, where JSF training would increase noise levels. The MTRs overfly 10 counties in Florida and Alabama. Of the 10 counties, the population under the MTRs by census tracts in three of the counties have minority and/or low income populations that are disproportionate to the respective populations in each county overall. All three counties (Clarke, Monroe, and Wilcox) are located in Alabama. In total, beneath the MTRs, 21,323 persons could potentially be affected by noise levels of between 57 and 76 dB DNL. Of the total population to be affected, over 18,000 would be minority and/or low income persons and over 5,000 would be persons under the age of 18. Aircraft sortie-operations on the MTRs would continue to be relatively infrequent (less than 2 per day). However, individual overflights could be alarming to people overflown and would be expected to cause significant annoyance to between 6 to 40 percent of the population affected (Section 7.3, Noise).

Also, flight training operations from the JSF are anticipated to present special risks to children as several schools and daycares underlie the special use airspace. The JSF flight training would increase the noise levels currently experienced by these schools and daycares and would have the potential to interrupt speech and hinder the learning process in classrooms. Noise levels of 62 dB CDNL from the 7SFG(A) high explosive training would occur beyond Eglin Range boundaries. These noise levels would have the potential of affecting up to 43 acres, of which 31 acres are zoned for residential use in the vicinity of Big Hammock Point and Sharon Lake. Residents of these areas affected by increased high-explosive noise levels may experience annoyance and/or activity disruption from the noise. However, these increased noise levels would not disproportionately affect minority and/or low-income populations or areas with high concentrations of children. Noise levels from the BRAC-related construction are not expected to affect any communities of concern or pose a special risk to children.

Transportation

Programmed and planned improvements in the Okaloosa Walton County area may affect the study area. Programmed projects are currently funded for construction within the next five years and were generally considered to be complete for the end-state analyses. Planned projects are not currently funded but have been included in the Transportation Planning Organization's (TPO's) 2030 *Long Range Transportation Plan* and *Cost Feasible Plan*. The *Cost Feasible Plan* projects reasonably available future funding based on past funding and identifies projects anticipated to be built with the projected revenues. The 2030 plan identifies several projects that will positively impact roadways in the study area. Specifically, these projects include:

- Interchange improvements on SR 85 and SR 123
- Six-lane SR 123 from SR 85S to SR 85 (includes bridges) (NOT construction funded)
- Improvements to Mid-Bay Bridge (SR 293)
- Six-lane US 98 from Airport Road to CR 30A
- Four-lane US 331 from north end of Choctawhatchee Bay Bridge to SR 20

These roadways are projected to be built by 2030, 14 years past the planning horizon of this study. While the TPO may prioritize projects, there is no specific list of projects that are anticipated to be complete by the project end state.

The Northwest Florida Transportation Corridor Authority adopted its Phase II Master Plan in June 2007. The Phase II Master Plan identifies a potential new corridor in the region. This proposed project begins at SR 79 in Bay County, runs east-west approximately parallel to SR 20 to the Mid-Bay Bridge (SR 293) and then traverses the southern edge of Eglin AFB intersecting SR 285 and SR 85 running parallel to SR 20, then following north of and parallel to SR 85, intersecting SR 123 then running north of and parallel to General Bond Blvd and north and east of SR 189 and SR 393 parallel, bypassing Fort Walton Beach and Mary Esther to SR 87 in Santa Rosa County. The current alignment is general in nature as the proposed bypass is still under study and discussion. There is no funding currently associated with this project; however, should this project move forward, it may become an alternative to widening some of the facilities identified as deficient in this analysis.

All of the future year (2016) traffic impact analyses conducted for the BRAC alternatives included the roadway projects that are currently funded for construction in the study area. In addition, all of the analyses took into account population and employment growth that is anticipated to occur off-base in Okaloosa and Walton Counties between now and 2016. This future year growth is included in all of the 2016 traffic analyses.

The planned 2030 roadway projects may partially address some of the needed improvements identified in these analyses. However, these projects may not be funded until after the BRAC actions are complete. The bypass project may also have an impact on the needed improvements; however, it is still conceptual in nature, and its exact impacts are unknown. Any of these projects would help in addressing the roadway needs identified in these analyses and will have a positive impact on the roadway network in general. The results of this analysis indicate that there are several roadways operating deficiently in the study area today, and the number of deficient roadway segments would increase by 2016 when both the BRAC alternatives and area growth is taken into consideration.

Utilities

Of the actions described as potentially creating cumulative impacts, several pertain to utilities on the cantonment area of Eglin AFB and two pertain to utilities on the Eglin Range. None of the regional development projects would create cumulative impacts to the utilities. Since the overall use of electricity and natural gas is projected to be less than current capacity, it is not expected that the relevant reasonably foreseeable actions would have a cumulative impact when combined with the JSF and 7SFG(A) cantonment or range requirements.

A total of 102,708 ft² of additional building space is proposed for Eglin Main Base. This results in cumulative impacts to the Main Base water system (potable water) and the two wastewater treatment plants that service Main Base and which are tentatively identified to service the proposed JSF IJTS and the 7SFG(A) cantonment area sub-alternatives for the Triangle and West Gate. Based on estimates by the American Water Works Association (AWWA, 2006) of water use and wastewater flow per square foot per day in an office building, the additional square footage would add 5,340 gallons of potable water use and wastewater flow per day to the overall Main Base water system and wastewater treatment plants (WWTP) on Main Base.

Part of the proposed construction of additional buildings is the associated demolition of several buildings and the EOD facility totaling approximately 41,150 ft² (U.S. Air Force, 2006v). The square footage being demolished would reduce the overall amount of potable water being consumed and wastewater being produced by 2,140 gallons/day and would help to lessen the cumulative impacts to the water system and WWTPs on Eglin Main Base. The overall increase in potable water consumption and wastewater flow as a result of the proposed construction and demolition of buildings would be 3,200 gallons per day (Table 9-5).

The proposed housing privatization project for Eglin AFB would create cumulative impacts to the amount of potable water consumed and the amount of wastewater produced when combined with the proposed building construction/demolition projects, the JSF IJTS, and the 7SFG(A) cantonment area.

Table 9-5. Projected Potable Water and Wastewater Generated by Proposed Projects on Eglin Main Base

| Proposed Projects | Projected Amounts of Potable Water Use (gallons/day) | Projected Amount of Wastewater (gallons/day) |
|-------------------------|--|--|
| Construction/Demolition | 3,200 | 3,200 |
| JSF IJTS | 537,000 ^a | 108,335 |
| 7SFG(A) cantonment area | 413,500 ^a | 70,965 |
| Total | 953,700 | 182,500 |

JSF = Joint Strike Fighter; IJTS = Initial Joint Training Site

^a Projected estimates for potable water use by the JSF IJTS and the 7SFG(A) are more than likely higher than will be their actual water use. The liberal estimates were used to account for industrial uses of water.

In conjunction with the additional wastewater resulting from the proposed JSF IJTS and the 7SFG(A) cantonment area, the total wastewater increase that could result once all of these projects are complete would be 182,500 gallons of wastewater/day or 0.183 million gallons per day (mgd) (Table 9-5). Considering total capacity for wastewater treatment on Main Base is 2.5 mgd and 41 percent of the total capacity is currently being used (as of July 2006), the additional 0.183 mgd would increase the amount of capacity being used to 48 percent of the total permitted capacities for the two facilities (Table 9-6).

Table 9-6. Potential Cumulative Impact on Wastewater Treatment Plant Capacity

| WWTP | Total Capacity in mgd ¹ | Current Annual Average in mgd (Including July 06) | Annual Average in mgd Including Proposed Projects ² | Percent of Capacity Used |
|------------------------------------|------------------------------------|---|--|--------------------------|
| Two Main Base Treatment Facilities | 2.5 | 1.02 | 1.203 | 48.1% |

WWTP = Wastewater Treatment Plant;

¹mgd = million gallons per day

²Proposed projects include JSF IJTS, 7SFG(A) cantonment area, construction/demolition building projects

The most influential factor that may reduce the amount of wastewater treatment required by the two facilities on Main Base is the recent approval by the Air Force for the construction of a large, new wastewater treatment facility by Okaloosa County near the intersection of Timberlake Road and Lewis Turner Boulevard on Eglin AFB. This new facility is expected to be completed in mid-2009 and to have a capacity of 10.0 mgd (Helms, 2006). To alleviate the amount of wastewater being treated by the facilities on Main Base, some of the wastewater may be treated by the new facility. In addition, the Poquito Bayou sub-alternative site for the 7SFG(A) cantonment area would utilize this new facility for wastewater treatment if selected for the 7SFG(A) cantonment. Other factors that may reduce the overall amount of wastewater requiring treatment is the final size of the buildings to be constructed, and the final number of housing units to be built for the privatization initiative.

The cumulative impact to potable water resulting from the proposed JSF IJTS and the 7SFG(A) cantonment area in conjunction with the other proposed projects on Main Base would increase the total consumption of potable water on Main Base to 3.67 mgd (Table 9-7). Considering the permitted average daily limit and maximum daily limit for the Main Base Water Systems are 5.29 and 6.08 mgd respectively, the 3.67 mgd would remain within permitted levels (Table 9-7).

Table 9-7. Potential Cumulative Impact on Permitted Levels of Main Base Water Systems

| Water Supply System | 2005 Average Daily Rate (mgd) ¹ | Average Daily Rate Proposed projects ² (mgd estimate) | Total Average Daily Rate (mgd) | Permitted Average Daily Limit (mgd) ¹ | Permitted Maximum Daily Limit (mgd) |
|-----------------------------|--|--|--------------------------------|--|-------------------------------------|
| Two Main Base Water Systems | 1.95 | 1.72 | 3.67 | 5.29 | 6.08 |

¹mgd = million gallons per day

²Proposed projects include JSF IJTS, 7SFG(A) cantonment area, housing privatization, construction/demolition building projects

On the Eglin Range, two reasonably foreseeable actions may combine with the proposed JSF outlying field use and the proposed 7SFG(A) ranges to cause cumulative impacts. The ALARNG training site is located in the same vicinity of Choctaw Field, which is proposed to be used as an outlying field for the JSF. Additional personnel located at Choctaw Field in support of the JSF outlying field requirements would increase the amount of potable water consumed and wastewater produced at the site. In the same area west of Hwy 87, the proposed ALARNG training site would also increase the consumption of potable water and the generation of wastewater. Cumulatively, in this part of the Eglin Range an increase would result for the consumption of water and in the generation of wastewater.

The proposed development of the LADAR test laboratory and outdoor range west of TA C-53 would require infrastructure to support electrical, natural gas, potable water and wastewater. Currently the area has no utilities. Approximately 14,000 ft² of buildings are proposed for construction and about 20 employees would be located on site. Based on estimates by the American Water Works Association (AWWA, 2006) of water use and wastewater flow per square foot per day in a facility of this type, the additional square footage would add between 500 and 750 gallons of potable water use and wastewater flow per day. In this same area, several of the 7SFG(A) ranges are proposed in Alternatives 1 and 2. The ranges would be located in and adjacent to TA C-53. As discussed in the utilities analysis for 7SFG(A) Range Alternatives 1 and 2, there is no existing utility infrastructure on TA C-53 except for an electrical distribution line. Potable water wells, wastewater treatment, and natural gas infrastructure would be required. Cumulatively, the need for utilities in this area of the Eglin Range would increase.

The combined requirement for utilities in these areas may provide an opportunity to share resources. Rather than increasing the existing number of septic tanks in the same geographical area, a wastewater treatment facility could be established to service both the ALARNG training site and the current and future wastewater needs at Choctaw Field that result from additional JSF support personnel. The same approach could be used at the LADAR facility and the proposed 7SFG(A) ranges at TA C-53.

1 New potable water wells required for the increases in consumption will require
2 Consumptive Use Permits from the State of Florida. Rather than applying for multiple
3 permits, a more efficient and accurate use of water could occur by combining additional
4 water needs to establish water systems west of Hwy 87 and in the vicinity of the
5 LADAR facility and TA C-53.

6 ***Air Quality***

7 The Proposed Action would incrementally contribute air pollution emissions during
8 construction and would allow for increased air pollutant emissions thereafter associated
9 with operations, maintenance, and travel of residents. This contribution would relate to
10 regional air quality goals and attainment standards. The contribution from the
11 Proposed Action would be negligible on a regional scale as construction and demolition
12 impacts would be short-term and end when the contractors complete the project.
13 Aircraft emissions would be ongoing and would be a permanent change in annual air
14 emissions. It should be noted that as the F-35s are introduced to Eglin AFB, the F-15s
15 currently based at Eglin will be phased out. The air emissions are expected to have a
16 slight net increase from aircraft emissions. Air emissions associated with the project
17 represent a small percentage of the Okaloosa, Santa Rosa, and Walton Counties' annual
18 emissions. Project emissions would not contribute to other county emissions in any
19 applicable manner.

20
21 Regional development projects consist of construction or improvement projects. Air
22 emissions from these activities would be temporary, intermittent, and minor. As a
23 result, the Air Force does not expect cumulative impacts associated with air emissions
24 from the Proposed Action and the regional development projects to adversely affect
25 regional air quality. Eglin cantonment and range projects are discussed as part of the
26 No Action Alternative in Section 4.7.6. The cumulative impacts include impacts
27 associated with the No Action Alternative plus the regional projects and the BRAC
28 action.

29
30 Documentation of some of the projects discussed in Section 9.1.3.1 (see Table 9-8) would
31 not impact air quality. Based on emission estimations and the BRAC alternatives, the
32 cumulative nature of these air emissions would not be sufficient to adversely affect air
33 quality in the region.

**Table 9-8. Projects Analyzed for Air Quality
With No Impacts Expected**

| Project | Emissions (tons/year) | | | | |
|---|-----------------------|-----------------|------------------|-----------------|--------|
| | CO | No _x | PM ₁₀ | SO ₂ | VOC |
| Cantonment | | | | | |
| Relocate AF EOD Admin Complex | 10 | 3 | 1 | 0 | 1 |
| 96th Security Forces Sqd | 84 | 26 | 9 | 3 | 9 |
| PMEL Facility | 25 | 9 | 14 | 1 | 2 |
| Ranger Training Brigade | 22 | 7 | 7 | 2 | 2 |
| Okaloosa Regional Airport | 15 | 13 | 247 | 1 | 2 |
| MFH | 80 | 27 | 74 | 3 | 16 |
| Veterans Administration Community-Based Outpatient Clinic | 91 | 6 | 9 | 0 | 8 |
| Joint Reprogramming Facility | 3 | 1 | 0 | 0 | 0 |
| Decrease in Personnel | -14 | -2 | 0 | 0 | -1 |
| Range | | | | | |
| ALARNG | 1731 | 1104 | 599 | 112 | 200 |
| Camp Rudder | 22 | 7 | 7 | 2 | 2 |
| Regional Development Action | | | | | |
| Interchange @ SR85 & SR123 | 263 | 33 | 94 | 2 | 16 |
| Eglin BRAC Emissions | | | | | |
| Eglin BRAC Emissions | 1121 | 2063 | 970 | 81 | 307 |
| Cumulative Impacts | | | | | |
| Total Emissions | 3452 | 3297 | 2031 | 208 | 564 |
| ROI Emissions | 150,219 | 22,909 | 30,829 | 4,097 | 23,742 |
| Percent ROI Emissions | 2% | 14% | 7% | 5% | 2% |

Note: No documentation was found for projects previously discussed in Section 9.1.3.1 that are not included in this table.

Safety

The ALARNG Master Plan implementation, the establishment of and outdoor LADAR test range, as well as the 7SFG(A) range and JSF flight training actions, would require portions of the range currently open for recreation to be closed to the public during testing and/or training activities. Eglin has procedures in place for instituting and enforcing these closures, so no cumulative impacts are anticipated to the public as a result.

Implementation of any of the activities associated with munitions, ordnance, or explosives would not be expected to prevent or significantly limit the ability of range managers to conduct EOD and range maintenance activities. All ordnance would be handled by trained and qualified personnel in accordance with all explosive safety standards and detailed published technical data. Storage of munitions would take place in designated and approved areas. Therefore, there would be no cumulative impacts related to explosives safety.

1 Regional development actions include upgrades to or expansion of four regional
2 airports (Okaloosa Regional Airport, Bob Sikes Airport in Crestview, The DeFuniak
3 Springs Airport, and Panama City-Bay County International Airport). This may
4 eventually lead to increased air traffic overall in the area. Viewed in conjunction with
5 proposed JSF flight training activities, there is potential for cumulative effects to require
6 reevaluation or alteration of flight patterns in order to maintain flight safety in the
7 region. Current safety policies and procedures at Eglin and regional airports are
8 designed to ensure that the potential for aircraft mishaps is reduced to the lowest
9 possible level. These safety policies and procedures would continue under the JSF
10 flight training and anticipated future actions at regional airports. Since the total
11 number of military and commercial flights is likely to increase, it is expected that the
12 number of bird strikes per year would similarly increase. However, the overall risk
13 associated with bird-aircraft strikes is expected to remain low.

14 ***Solid Waste***

15 Solid waste generation at Eglin AFB would increase due to the increased number of
16 personnel and operations (i.e., range operations) as well as the construction, demolition,
17 and renovation activities to support the JSF and 7SFG(A). These activities would have a
18 cumulative impact to landfill capacity available within the region of influence (ROI). In
19 addition, military project activities identified under the No Action Alternative and other
20 actions being undertaken by civilian interests (identified in Section 9.1.3.2) will result in
21 the generation of additional solid wastes requiring disposal. Due to the existing landfill
22 capacity and number of landfills available within the vicinity, the overall cumulative
23 impact with regard to available landfill capacity is anticipated to be minimal as
24 sufficient capacity exists to provide for the disposal of solid wastes generated within the
25 area for the foreseeable future. Although sufficient landfill capacity is available within
26 the area for the disposal of solid wastes associated with planned and ongoing activities,
27 short term impacts may be realized depending upon the number of projects (planned
28 and ongoing) utilizing an individual landfill. Short-term impacts may include the
29 ability to schedule delivery of wastes for disposal at given landfills or longer
30 turnaround time for trucks due to delays in unloading. Because it is not known which
31 landfills are being utilized by any given project or activity, short-term impacts are
32 identified as a potential but may not be realized depending upon the usage of
33 individual landfills.

34
35 Reasonably foreseeable future actions identified for Eglin AFB and the region include
36 construction, demolition and/or renovation of existing structures as discussed under
37 the No Action Alternative and other actions (e.g., Regional Development) in this
38 chapter. These projects would contribute to the available disposal capacity within the
39 area as additional debris would be generated from these planned activities. Although it
40 is not possible to accurately estimate the mass of waste associated with these projects
41 with available information, several thousand tons of debris would be associated with
42 the construction and demolition from these projects. This would result in an

1 cumulative impact that would reduce the overall capacity of landfill space available
2 within the area for the disposal of municipal solid and debris wastes.

3
4 Since most construction projects would likely be completed within a three- to -year
5 timeframe, the increase in waste generation (construction debris) would be of short
6 duration when compared to the remaining years of capacity available within existing
7 landfills.

8 ***Hazardous Materials***

9 Eglin AFB has developed programs and procedures to comply with all federal/state
10 hazardous materials and hazardous waste management and reporting requirements.
11 No cumulative impacts to hazardous material and hazardous waste management are
12 anticipated.

13
14 The implementation of the ALARNG Master Plan for Cobb Training Site would involve
15 munitions that contain hazardous chemicals in the form of explosives or propellants.
16 There is potential for cumulative effects when these chemicals are examined in
17 conjunction with the increased use of munitions under the 7SFG(A) range and JSF flight
18 training proposed alternatives.

19 Many projects (past, present, and future) involve construction on various portions of
20 Eglin AFB. Many environmental restoration program (ERP) sites are located
21 throughout Eglin Main Base and the Eglin Range. Most of these sites have been
22 designated "No Further Action" and as such would not be affected by construction or
23 other activities in their vicinity. Regardless, development on or near any ERP sites
24 would be coordinated with all applicable organizations/agencies.

25
26 Numerous present and future projects involve the demolition of existing buildings to
27 make way for new facilities. Buildings constructed before 1989 or 1978 are likely to
28 contain asbestos and/or lead-based paint, respectively, to some extent. Eglin has
29 procedures in place if these are encountered and would use certified contractors to
30 assist with removal and disposal. New buildings would not contain these materials, so
31 there would be a cumulative net beneficial effect to the health and safety of military and
32 civilian personnel working in these facilities.

33 ***Physical Resources***

34 ***Soils***

35 Changes to soils associated with the JSF IJTS cantonment and training would not
36 substantially alter soils in the area. The Proposed Action, including facility
37 construction, flight activities, and ground training are generally consistent with existing
38 uses for Eglin Main Base and would not be expected to substantially affect the soils in
39 these areas. At the JSF IJTS alternative locations, it is expected that minimal impacts

would occur since much of the alternative locations are Urban Land; thus, the soil has already been impacted by the runway location and associated buildings.

Construction-related soil disturbance at multiple adjacent locations can have cumulative impacts. If the actions are concurrent, wind-borne eroded soil and transport through stormwater runoff can have cumulative impacts on water quality. Where the terrain slopes to greater than 12 percent, transport of soil as a result of stormwater is increased. Together with the potential expansion of the University of Florida REEF complex and MFH-related actions at the North Poquito Bayou location, soil disturbance from the 7SFG(A) cantonment construction would be adverse. The aforementioned construction activities would occur at locations that are primarily sandy. While sandy soils allow for rapid infiltration of water, they can also erode quite easily if situated on a steep slope. Some areas within the 7SFG(A) sites are very sloped (greater than 12 percent) such as along creeks and waterway, though most of the terrain throughout the alternative areas is relatively flat. Naturally forested areas in these locations would become deforested through construction activities. It is particularly important that BMPs for the 7SFG(A) locations be implemented in order to reduce potential cumulative impacts. These include silt fencing, hay bales, and wherever possible, seeding, so that soil/sediment runoff is slowed.

Water Resources

Stormwater runoff can adversely impact water resources, due to its ability to carry sediments and contaminants. Addition of impermeable surfaces (i.e., concrete, asphalt) would result in an increase in stormwater runoff. For the JSF IJTS alternatives, no impacts to water resources are expected since the alternative locations are already developed. These areas currently have a large amount of impervious surfaces (such as current runway facilities) and stormwater treatment facilities already in place.

The 7SFG(A) alternatives lie within undeveloped areas which would require the removal of vegetation. Removal of vegetation as well as the construction of the cantonment area would expose soil to wind and stormwater, which could transport sediments to nearby surface waters. Stormwater transport is assisted by sloping, barren terrain. Sandy soils readily absorb stormwater, limiting its transport across the surface of the terrain. Most of the 7SFG(A) alternative areas are characterized by sandy soils and flat terrain, with slopes increasing only near streams or bayous found on or near some of the alternative sites. The addition of impervious surfaces within the cantonment areas would increase the amount of available stormwater. Other construction projects that also would increase stormwater have been proposed for areas around the 7SFG(A) Cantonment Alternative 1 areas. These projects include the construction of MFH around Poquito Bayou, a Veterans Administration Hospital, and expansion of the University of Florida REEF. Cumulatively, these projects could disturb through construction sloped areas near streams or bayous. Poquito and Garniers Bayous would potentially be affected. The sediment transport into these

1 bayous and resulting changes to water quality may be perceived by the Florida
2 Department of Environmental Protection (FDEP) as potentially adverse. The Army
3 would obtain construction and stormwater permits as part of the action. As required by
4 the FDEP, the Army would develop a comprehensive stormwater, erosion, and
5 sedimentation control plan (or SWPPP) and implement site-specific management
6 practices to control erosion.

7
8 If all projects include implementation of site-specific management actions and BMPs, it
9 is unlikely that adverse cumulative impacts to water resources would occur.

10 ***Biological Resources***

11 Localized loss of habitat, degradation of habitat, noise impacts, or direct physical
12 impacts to species can have a cumulative impact when viewed on a regional scale if that
13 loss or impact is compounded by other events with the same end result. Analysis of
14 potential impacts has identified minimal potential for direct physical impacts or noise
15 impacts to sensitive species, provided Eglin user groups implement management
16 actions and regulatory requirements. Regionally and cumulatively, very few acres of
17 sensitive habitat would be cleared for BRAC and other upcoming Eglin activities (less
18 than 0.1 percent of Eglin land). Similar habitats exist on other portions of Eglin and on
19 nearby public lands (e.g., Blackwater River State Forest, Conecuh National Forest);
20 these areas would continue to be managed as high quality, significant habitats. Thus,
21 on a regional scale, upcoming land clearing at Eglin would result in only a small
22 reduction in sensitive habitats and would not be significant.

23
24 Eglin AFB has an estimated 400,000 acres of potential tortoise habitat, with the majority
25 of it presently unoccupied. Up to 19 known active gopher tortoise burrows may be
26 affected by direct land clearing. Due to the large amount of potential tortoise habitat on
27 Eglin, relocation could easily occur; thus direct impacts to the gopher tortoise
28 population would be minimal. Of more concern would be the loss of suitable acres of
29 sandhills habitat on public land due to the rapid reduction in gopher tortoise habitat on
30 surrounding private lands. Eglin currently serves as a relocation area for off-site
31 tortoises, and the Florida Fish and Wildlife Conservation Commission (FWC) would
32 like to continue to move tortoises to Eglin to preserve the species. Only one percent of
33 Eglin's sandhills habitat would be cleared for upcoming Eglin activities, leaving many
34 acres of potential tortoise habitat. Cumulatively, Eglin activities would not result in
35 significant adverse effects to the gopher tortoise.

36
37 Eglin contains over 95 percent of Okaloosa darter streams (236 miles). Recognizing the
38 importance of preventing excess sediment from reaching darter streams, Eglin is
39 actively restoring darter streams and surrounding riparian areas to reduce
40 sedimentation, thus promoting the recovery of the Okaloosa darter population. Eglin
41 has sited new ranges and construction areas to avoid riparian areas, thus minimizing
42 direct impacts and indirect sedimentation impacts. At most, land clearing and

1 construction would potentially affect only a couple of miles of stream. Due to the
2 importance of erosion control near Okaloosa darter streams, stream buffers would be
3 maintained at all darter streams where upcoming clearing and construction would
4 occur and appropriate erosion control measures would be employed during clearing
5 and construction. Cumulatively, activities at Eglin would not result in notable adverse
6 effects to the Okaloosa darter, and may actually result in overall improvements in the
7 darter population through past, present, and future restoration activities.

8
9 Eglin AFB has the largest RCW population in the western portion of the Florida
10 Panhandle, with 366 active clusters. Together with Blackwater River State Forest and
11 Conecuh National Forest, there are over 400 active clusters in the western Florida
12 Panhandle. Direct land clearing for BRAC and other past, present, and foreseeable
13 projects would impact less than 0.1 percent of the 210,000 acres managed for RCWs on
14 Eglin. Additionally, Blackwater and Conecuh maintain approximately 28,000 acres of
15 foraging habitat, and are actively restoring additional acreage to create potential RCW
16 habitat. Up to 17 inactive RCW trees may be cut for BRAC and 1 inactive tree for the
17 ALARNG SARC; however, there are almost 4,300 inactive RCW trees on Eglin.
18 Regionally, the loss of 18 inactive RCW trees and less than 200 acres of RCW foraging
19 habitat would not significantly impact RCWs.

20
21 Although upcoming land clearing would directly affect only a small portion of Eglin
22 (approximately one percent), far-reaching indirect impacts may occur due to increased
23 mission activity (7SFG(A), JSF, and other user groups), new construction in previously
24 undeveloped fire-dependent habitats, and continued development in the communities
25 surrounding Eglin. The primary cumulative impact to biological resources would be
26 related to reductions in prescribed fire on Eglin. Multiple species, particularly the
27 RCW, are dependent on fire to maintain quality habitat. The long-term effectiveness of
28 alternate management techniques such as mechanical or chemical understory control is
29 uncertain, but these techniques would be employed in foraging habitat and other high
30 priority areas where prescribed burning was restricted. Due to the importance of the
31 Eglin RCW population regionally (Eglin is a core population), reductions in quality
32 foraging habitat may affect future growth potential because Eglin would not be able to
33 put recruitment clusters in previously designated areas, delaying Eglin's population
34 recovery. Also, Eglin would likely lose the ability to use a number of clusters as donors
35 for translocation, which may affect not only the potential for Eglin's population to
36 grow, but also other partners in the Southern Regional Translocation cooperative
37 because Eglin may not be able to provide as many birds for translocation.
38 Cumulatively, reductions in prescribed fire may negatively affect RCWs on Eglin
39 through group isolation, habitat fragmentation, habitat degradation, and loss of
40 foraging habitat, but group demography, population level, and recovery unit level
41 would not be affected.

Impacts to certain biological resources from 7SFG(A) and JSF activities increase when viewed cumulatively with other activities occurring regionally and in the future (i.e., loss of gopher tortoise habitat regionally). In other cases, impacts decrease when viewed on a larger spatial and temporal scale (i.e., clearing of RCW foraging habitat). Although negative impacts would occur to some biological resources, overall, upcoming BRAC activities, in concert with other regional and upcoming future activities, would not threaten the continued existence of any biological resources; thus impacts would not be significant. Implementation of management actions, regulatory requirements, and an increase in Eglin AFB prescribed fire support would further reduce the potential for negative impacts to biological resources.

Cultural Resources

Damage to the nature, integrity, and spatial context of cultural resources can have a cumulative impact if the initial act is compounded by other similar losses or impacts. The alteration or demolition of historic structures and likewise the disturbance or removal of archaeological artifacts may incrementally impact the cultural and historic setting of Eglin AFB.

None of the Eglin range or region development projects discussed have been identified as contributing to cumulative impacts to archaeological resources. In terms of historic resources, the potential for Cold War Era military resources exists across most of Eglin AFB. If impacts to these resources are anticipated due to range activities, plans for the protection or mitigation of these resources must be developed by Eglin's Cultural Resources Branch in consultation with the State Historic Preservation Officer (SHPO) and other consulting parties as appropriate. With the exception of the MFH planned action, no cantonment area activities have the potential to cumulatively impact cultural resources. The MFH Program includes the demolition, construction, and renovation of MFH units through implementation of the MFH Demolition, Construction, Renovation, and Leasing Program, otherwise known as MFH Privatization, at Eglin AFB and Hurlburt Field. Within the project area for MFH is one Historic District (Camp Pinchot) listed on the National Register of Historic Places (NRHP). If demolition of the Camp Pinchot Historic District would occur, this would result in the loss of one of Eglin's two Historic Districts and one of the last remaining historic structures of the Choctawhatchee National Forest in its formative period.

Within BRAC project alternative areas, there is one Historic District (Eglin Field) listed on the NRHP and one Historic District (SAC Alert) considered to be eligible for the NRHP. The individual structures within the Eglin Field and SAC Alert Historic Districts are not listed on the NRHP individually; they are listed inclusive of the District as a whole. Demolition of contributing resources without prior mitigation has the

potential of affecting the District as a single resource. Demolition of structures within these Districts may result in the degradation of Eglin's Historic Districts.

If proper mitigation or protective measures are undertaken in consultation with the SHPO and other consulting parties within these aforementioned Historic Districts (Camp Pinchot, Eglin Field, and SAC Alert) to affected structures, no cumulative impacts are expected to this resource area.

9.2 OTHER ENVIRONMENTAL CONSIDERATIONS

9.2.1 Relationship Between Short-Term Uses and Long-Term Productivity

Construction, demolition, and renovation-related activities would result in a short-term use of resources. Long-term productivity impacts are determined by comparing the project's impacts against long-term regional and local planning objectives. Impacts are associated with land use changes, population increases, and the related traffic and socioeconomic factors. The short- and long-term effects of the Proposed Action and alternatives are summarized below.

Short-Term Uses

All alternatives would have minor short-term effects related to their construction activities through the use of construction-related materials, fuels, etc. The significant economic benefits created during construction in the form of jobs and the direct and indirect demand for goods and services would offset the short-term use of the environment.

Long-Term Productivity

Long-term adverse impacts to productivity as a result of unmitigated short-term impacts and uses would include the following:

- Decreases in available recreational land on Eglin AFB (i.e., increased area closures – see Sections 4.3, 5.3, 6.3, 7.4)
- Increased traffic in the local area (see Sections 4.5, 6.5)
- Increased noise levels associated with the F-35 (see Section 7.3)
- Increased demand for housing (see Sections 4.4, 5.4, 6.4)
- Increased demand for utilities (see Sections 4.6, 5.5, 6.6, 7.6)
- Increases in mobile air pollution sources (see Sections 4.7, 5.6, 6.7, 7.7)

Long-term beneficial impacts to productivity would include the following:

- Overall support of the region's continued economic development through:
 - Creation of more jobs locally (see Sections 4.4, 5.4, 6.4).
 - Increases in the tax base (see Sections 4.4, 5.4, 6.4).
 - Increased revenues for local businesses (see Sections 4.4, 5.4, 6.4).
 - Increased revenues for local utilities (see Sections 4.6, 5.5, 6.6, 7.6).
 - Increased housing construction (see Sections 4.4, 5.4, 6.4).

Short-Term Uses Versus Long-Term Productivity

The two- to three-year construction/demolition period for all alternatives would result in a short-term increase in employment, income, and net fiscal benefits and revenues to the surrounding community. Additionally, there would be a short-term increase in the amount of local building supplies needed to execute the project. It is not expected that the availability of these resources for other users would be reduced due to the small size of the project relative to the regional building industry.

Local short-term resource uses resulting from all alternatives would be consistent with the maintenance and enhancement of long-term productivity for the local communities and state and region; use of the Eglin Military Complex as a center of excellence for military testing and training is consistent with regional planning objectives, and Eglin's continued growth is beneficial and essential from an economic standpoint.

Many of the potential adverse impacts to long-term productivity are the result of short-term factors, which are often mitigated through planning aspects when implementing a proposed action and/or alternatives; traffic is one example. The Proposed Action and alternatives analyzed in this document would have immediate impacts to traffic in the short-term with long-term implications.

Typically, the Department of Defense (DoD) looks to normal civil highway programs to make highway improvements to defense installations because the installations generate major economic benefits. The Air Force, local planning agencies, and the Florida Department of Transportation (FDOT) would work to address transportation issues to ensure that long-term impacts would be mitigated through proper planning and design of local roadways and transportation infrastructure. The Defense Access Road (DAR) Program is one method for DoD to help pay for public highway improvements required as a result of sudden/unusual defense-generated traffic impacts. The challenge is accommodating Eglin's growth and the needs of the local community in a manner that is mutually beneficial. While there are potential adverse impacts to long-term productivity, many impacts can be mitigated, resulting in benefits to long-term

productivity associated with local increases in employment, income, and net fiscal benefits and revenues that outweigh short-term impacts.

Consolidation of training facilities would use valuable resources in the short-term. However, consolidating facilities is a more efficient use of land area allowing for greater long-term productivity in the unused areas. Specifically, unused areas are available for other uses. Investment of resources in the short term for future productivity over the long term results in the need for fewer resources in the future to achieve the same level of productivity. As an example, by co-locating the JSF IJTS with the rest of the JSF program, the need for excessive travel and related expenditure of fuel and other resources is minimized or eliminated. This savings in productivity over the long term would be realized through reduced energy consumption, more efficient land use, and reduced financial cost.

9.2.2 Irreversible and Irretrievable Commitment of Resources

The National Environmental Policy Act (NEPA) requires environmental analysis to identify any irreversible and irretrievable commitments of resources involved in the implementation of the Proposed Action or alternatives. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the uses of these resources have on future generations. *Irreversible* effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. *Irretrievable* resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural site).

Implementing the Proposed Action through any of the alternatives would require a commitment of natural, physical, human, and fiscal resources. In all of these categories, irreversible and irretrievable commitments of resources would occur. Land required for new construction would be irreversibly committed during the functional life of the facilities; in some cases land uses would change from undeveloped to developed. Although it is possible for land to revert to its former state if the facilities were abandoned and destroyed, the likelihood of such an occurrence for established facilities would be low.

Considerable amounts of fossil fuels and construction materials, such as steel, cement, aggregate, and bituminous material, would be expended under the action alternatives. These physical resources should generally be in sufficient supply during the proposed project initiation, and their commitment to the project would not have an adverse effect on the resource's continued or future availability.

Some biological resources would be irreversibly and irretrievably lost with construction of the proposed project, and some areas of wildlife habitat would be lost. However,

1 based on the size of the Eglin Complex compared to the amount of acreage that would
2 be used for facilities, the loss would be minimal; sensitive habitat areas would be
3 avoided to the extent practicable and impacts to sensitive species would be mitigated as
4 discussed in the EIS.

5
6 In terms of human resources, labor would be used in preparation, fabrication, and
7 construction of the project. Labor is generally not considered to be a resource in short
8 supply, and commitment to the project would not have an adverse effect on the
9 continued availability of these resources. Project construction would require a
10 substantial expenditure of funds.

11
12 The proposed commitment of natural, physical, human, and fiscal resources is based on
13 the requirements mandated by Congress through the BRAC Commission's
14 recommendations. It is anticipated that businesses, employees, and residents of the
15 local area would benefit from improved economics resulting from implementation of
16 the Proposed Action.

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12. GLOSSARY OF TERMS

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| Affected Resource | Any resource that the proposed action may impact. |
| Aircraft Mock-ups | A full-sized scale model of a particular aircraft, used for demonstration, study, or testing. |
| Aircraft Operations | Flights and supporting operations that occur at a particular airfield. |
| Ambient Air Quality | The air quality surrounding a particular area. |
| Aquifer | An underground bed or layer of earth, gravel, or porous stone that yields water. |
| Asbestos | Either of two incombustible, chemical-resistant, fibrous mineral forms of impure magnesium silicate, used for fireproofing, electrical insulation, building materials, brake linings, and chemical filters. |
| Bonifay Loamy Sand | A strongly sloping soil in uplands, which is well-drained. The typical surface layer is very dark grayish brown and is roughly 7 inches in thickness. Loamy subsoil occurs at a depth of 40 inches or more and tends to be yellowish in color. Surface runoff is rapid but these soils generally hold a seasonal high water table from December to April. Bonifay soils are typically not well-suited toward crop cultivation. |
| Cantonment Area | An area used for temporary and/or permanent billets for troops. |
| Corridor | An area of land, airspace, or water forming a passageway. |
| Cradle to grave | Occurring or persisting from beginning to end. |
| C-weighted decibels | When describing large amplitude impulsive sounds such as a clap of thunder, a gunshot, or an explosion, the actual total amount of acoustic energy created by the event is an important consideration. Sounds of this nature are normally measured on the "C-weighted" scale, which gives nearly equal emphasis to all frequencies, but suppresses the very low and very high bands. Values of C-weighted noise are shown in terms of C-weighted decibels (dBC). |
| Dorovan Muck | Clay-like soil that contains much organic matter from decomposed woody and herbaceous remains characterized by a very dark brown or almost black peat that sticks together when pressed. |
| Drop Zones | The area into which soldiers or supplies are parachuted from an aircraft. |
| Ecological Association | A complex of communities, which develops in accord with variations in physiography, soil, and successional history within the major subdivision of a biotic realm. |
| Ecosystem | An ecological community together with its environment, functioning as a unit. |
| Environmental Justice | The combination of social and environmental movements, which deals with the inequitable environmental burden born by groups such as racial minorities or economically disadvantaged groups. |
| Floodplains | A plain bordering a river and subject to flooding. |
| General Conformity Rule | Ensures that the actions taken by federal agencies in nonattainment and maintenance areas meet national standards for air quality. |
| Ground Maneuvers | Military missions conducted on the ground. |
| Halogenated Solvents | A substance that is treated with any of a group of five chemically related nonmetallic elements, including fluorine, chlorine, bromine, iodine, and astatine; that is capable of dissolving another substance. |
| Impervious Surface Areas | Areas that contain artificial structures, such as pavements and building roofs, which replace naturally pervious soil with impervious construction materials. |

Glossary of Terms

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|---------------------|---|
| Interstitial Areas | The areas between test areas. |
| Lakeland Sands | The Lakeland series consists of very deep, excessively drained, rapidly permeable, strongly acidic soils that form in thick beds of eolian, fluvial, or marine sands on broad, nearly level to very steep uplands in the Lower Coastal Plain |
| Mitigate | To moderate (a quality or condition) in force or intensity; alleviate. |
| Potable Water | Water that is fit to drink. |
| Proponent | One who argues in support of something; an advocate. |
| Pyrotechnics | A mixture of chemicals which, when ignited, is capable of reacting exothermically to produce light, heat, smoke, sound or gas. |
| Receptors | Receivers of stimuli such as noise. |
| Revegetation | The process of replanting and rebuilding the soil of disturbed land. |
| Riparian | Of, on, or relating to the banks of a natural course of water. |
| Rutledge Fine Sand | Black to gray in color, very poorly drained, nearly level soils with a water table at or near the surface for long periods of time during the year. Rutledge soils occur in shallow, depression areas along ponds, streams, creeks and bays; thus, flooding is common. Typical surface layers are black sand, approximately 7 inches in thickness. Gray soils lie beneath this layer. |
| Sortie | An operational flight by a single aircraft from take-off through landing including performance of missions and training events. |
| Strafing | An attack of machine-gun or cannon fire from a low-flying aircraft. |
| Supersonic Corridor | A passage of restricted airspace in which aircraft may exceed the speed of sound. |
| Test Area | An area where military testing occurs. |
| Troup Sand | A moderately well-drained soil that forms in sandy and loamy marine sediments. |
| Understory | An underlying layer of vegetation, especially the plants that grow beneath a forest's canopy. |
| Uplands | Land or an area of land of high elevation, especially when level. |
| Urban Land | Of, relating to, or located in a city. |
| Warfighter | A person who fights in or plans a war; a military soldier or officer; a warrior. |
| Water Operations | Military training exercises and missions performed on the water. |
| Wetlands | Ecosystems that form transitional areas between terrestrial and aquatic components of a landscape. Typically they are shallow-water to intermittently flooded ecosystems, which results in their unique combination of hydrology, soils, and vegetation. |